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ORIGINAL ARTICLES.

COQUILLE PROTECTIVE SPECTACLES.*

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Tinted protective spectacles, as kept in stock by the opticians, are procurable in both the plane and the coquille form, in the latter case generally with concentric spherical surfaces; the coquilles affording more complete protection to the eyes and giving rise to less displacement of objects seen through them under strong rotation of the eyeballs. When of moderate curvature and thickness, they may be regarded as practically of zero power.

In wearing strongly curved or thicker coquilles, and especially in the case of the large and necessarily thick protectives demanded by automobilists, the negative power of a convexo-concave (or concavo-convex) lens with concentric surfaces becomes a factor too important to be neglected. In fact, in the better grades of "automobile goggles," the curvature and relation of the lens-surfaces are adjusted for practically zero power, but with the minor disadvantage, as compared with coquilles with concentric surfaces, of causing greater displacement of objects viewed peripherally through them. These lenses, measured by calipers, show a progressive decrease in thickness from the centre towards the periphery. The general relations of the radii and of the centres of curvature,

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as determining the configuration of the lens, are shown by geometrical construction, in Figure 1.

Let A_1B_1 represent an arc of a great circle of a sphere, whose centre is at O_1. Let QA_1, normal to the spherical surface, represent a ray incident at A_1; consequently entering the second medium (denser than the first) without change of direction, to pass through O_1. Draw the radius O_1B_1.

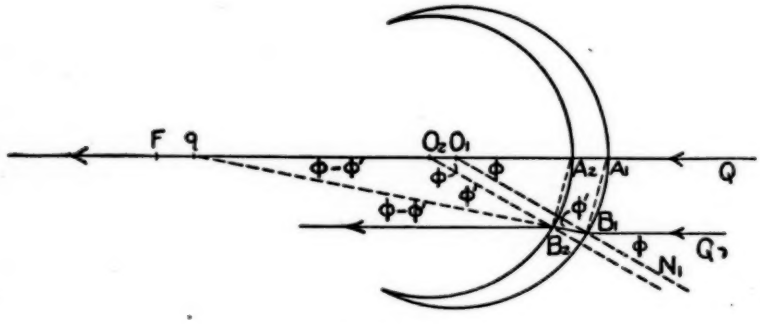

Figure 1.

Let Q_nB_1, parallel to QA_1, represent another ray, incident eccentrically on the spherical surface at B_1, at an angle to the normal

$$Q_nB_1N_1 = A_1O_1B_1;$$

consequently refracted at an angle to the normal $< Q_nB_1N_1$, in a direction to intersect the axial ray, QO_1 produced, at q. Take

$$qB_2 < qB_1;$$

draw B_2O_2 parallel to B_1O_1, intersecting QO_1 produced at O_2; and from O_2 as a centre describe a circle, A_2B_2, which will be a great circle of a second sphere whose centre is O_2.

As the radii O_1B_1 and O_2B_2 are parallel, planes tangent to the two spherical surfaces at B_1 and B_2 are parallel. The ray $Q_nB_1B_2$, emerging from the denser into the rarer medium at B_2, undergoes therefore a second refraction, opposite and equal to its first refraction, to become again parallel to Qq. The geometrical focus, in which the twice refracted eccentric ray meets the axial ray, falls therefore at infinity; and the power of the lens, which is the reciprocal of the focal length, is zero.

The nodal (and principal) points as determined by the parallelism of the eccentric ray, before and after its refraction through the lens, to the axial ray, fall also at infinity.

As the triangles B_1O_1q and B_2O_2q are similar, their homologous sides are proportional and, as

$$B_2q < B_1q$$

so

$$O_2B_2 < O_1B_1$$

and

$$O_2q < O_1q;$$

these inequalities expressing the fact that the radius of curvature of the concave surface is less than that of the convex surface, and that the centre of curvature of the concave surface is at a greater distance from the lens than that of the convex surface.

Draw the chords B_1A_1 and B_2A_2 to complete the triangles $B_1O_1A_1$ and $B_2O_2A_2$ which, by construction, are isosceles and similar; B_2A_2, parallel to B_1A_1, also dividing A_1q and B_1q proportionally. Therefore, as

$$A_1q = A_1O_1 + O_1q = B_1O_1 + O_1q$$

is greater than B_1q, so A_1A_2 is greater than B_1B_2.

As the parallel radii O_1B_1 and O_2B_2 meet the two spherical surfaces in points at which their tangent planes are parallel, irrespective of the distance at which the parallel incident ray Q_nB_1 is taken from QA_1, these surfaces are bounding surfaces of a coquille lens of zero power; and, as O_2 lies behind O_1, the progressively decreasing distance of the two spherical surfaces one from the other, for increasing distances of B_1B_2 from A_1A_2, determines the configuration of the lens as a meniscoid in which each of the surfaces is greater than a hemisphere.

As, by construction,

$$A_1A_2 = A_1O_1 + O_1O_2 - A_2O_2, \ldots\ldots\ldots\ldots\ldots\ldots (a)$$

the thickness of the lens at its centre is equal to the sum of the difference of the radii of the two surfaces and the distance at which the centre of curvature of the second (concave) surface falls behind that of the first (convex) surface.

To ascertain the ratio of A_1A_2 to O_1O_2 it is necessary to solve the triangle B_1O_1q by making use of a known trigonometrical function—the index of refraction—which is the expression of a constant ratio of the sine of the angle of incidence to the sine of the angle of refraction.

Designating the angle

$$A_1O_1B_1 = Q_nB_1N_1$$

by ϕ, and O_1B_1q by ϕ', we have, for the triangle B_1O_1q

$$B_1O_1q = 180° - A_1O_1B_1 = 180° - \phi$$

$$\therefore \sin B_1O_1q = \sin \phi$$

$$O_1B_1q = \phi'$$

$$O_1qB_1 = \phi - \phi'$$

Designating the sides opposite to these angles by a_1, b_1, r_1, respectively, and the index of refraction $\frac{\sin \phi}{\sin \phi'}$ by μ, we have

$$a_1 : b_1 : r_1 = \sin \phi : \sin \phi' : \sin(\phi - \phi')$$

$$\left.\begin{aligned} a_1, = \mu b_1 &= \frac{\sin \phi}{\sin (\phi - \phi')} r_1 \\ b_1 &= \frac{\sin \phi'}{\sin (\phi - \phi')} r_1 \end{aligned}\right\} \quad \ldots\ldots\ldots\ldots\ldots\ldots \text{(i)}$$

When B_1 is taken very near to A_1, in which case ϕ becomes so small that it is permissible to write

$$\sin (\phi - \phi') = \sin \phi - \sin \phi' = (\mu - 1) \sin \phi',$$

we have

$$a_1 : b_1 : r_1 = \mu : 1 : \mu - 1$$

$$\left.\begin{aligned} a_1 = \mu b_1 &= \frac{\mu}{\mu - 1} r_1 \\ b_1 &= \frac{1}{\mu - 1} r_1 \end{aligned}\right\} \quad \ldots\ldots\ldots\ldots\ldots\ldots \text{(ii)}$$

These maximum values of a_1 and b_1 measured respectively from the vertex and from the centre of curvature of the arc A_1B_1, determine a limiting position of q as the geometrical focus in which a consecutive ray intersects the axial ray of a parallel pencil refracted at the spherical surface.

Again, as the radius O_2B_2 parallel to O_1B_1 divides B_1q and O_1q proportionally, the sides of the similar triangles B_1O_1q and B_2O_2q, also the differences of their homologous sides, are proportional to the sines of the opposite angles. Designating B_2q, O_2q, and O_2B_2

by a_2, b_2, and r_2, respectively, and the differences of the homologous sides of the two triangles by $a_1 - a_2$, $b_1 - b_2$, and $r_1 - r_2$, we have

$$a_1 - a_2 : b_1 - b_2 : r_1 - r_2 = \sin \phi \ : \sin \phi' : \sin (\phi - \phi')$$

$$a_1 - a_2 = \mu (b_1 - b_2) = \frac{\sin \phi}{\sin (\phi - \phi')} (r_1 - r_2), \ldots\ldots\ldots (\text{I})$$

and, for vanishing values of ϕ,

$$a_1 - a_2 : b_1 - b_2 : r_1 - r_2 = \mu : 1 : \mu - 1$$

$$a_1 - a_2 = \mu (b_1 - b_2) = \frac{\mu}{\mu - 1} (r_1 - r_2), \ldots\ldots\ldots\ldots (\text{II})$$

which is the algebraic expression of constant ratios between the thickness of a coquille lens of zero power, at its centre, the distance of the centre of curvature of the second (concave) surface behind that of the first (convex) surface, and the difference of the radii of the two surfaces.

Designating the thickness of the lens at its centre by d, and the distance of the centre of curvature of the concave surface behind that of the convex surface by c, we may write, for the coquille lens of zero power:

$$(a)\ (\text{II}) \ldots \begin{cases} d = c + r_1 - r_2 \\ c = d - r_1 + r_2 \\ d = \mu c = \mu (d - r_1 + r_2) \ldots\ldots\ldots\ldots\ldots\ldots (\text{II}) \end{cases}$$

As, by construction, B_2 may be taken at any distance from B_1 less than B_1q, it is possible to construct a coquille lens of zero power of any required thickness between the limits

$$d = 0$$

and

$$d = \frac{\mu}{\mu - 1} r_1$$

Limiting cases:

(1) When

$$d = 0, \text{ consequently } c = 0, \text{ and } r_1 - r_2 = 0 ,$$

the coquille lens of zero power reduces to an imaginary film, without thickness.

(2) When r_1 and r_2 are both infinite, consequently $r_1 - r_2$, c, and d all indeterminate, the coquille of zero power reduces to a plate with parallel plane surfaces, and of indeterminate thickness.

Numerical solutions:

As the index of refraction is not the same for different kinds of glass, the numerical solutions of the equations in which μ appears as a factor are necessarily affected by the material of which the lens is made. For the case of the English optical glass largely used in the manufacture of spectacle-lenses in this country, the index of refraction is about 1.51, from which we get the ratios:

$$\mu : 1 : \mu - 1 = 1.51 : 1 : 0.51.$$

If we assue an approximate value,

$$\mu = 1.5 = \tfrac{3}{2},$$

for the index of refraction from air into glass, we get the very convenient, simplified ratios:

$$\mu : 1 : \mu - 1 = 1.5 : 1 : 0.5 = 3 : 2 : 1,$$

which may be regarded as accurate enough for ordinary, practical needs. Adopting this approximate value of μ, we have:

$$\begin{aligned} (\text{II}) \ldots\ldots\ldots d : c : r_1 - r_2 &= 3 : 2 : 1 \\ r_1 - r_2 &= \tfrac{1}{3}\ d \\ r_1 &= r_2 + \tfrac{1}{3}\ d \\ r_2 &= r_1 - \tfrac{1}{3}\ d. \end{aligned}$$

For practical purposes it is sufficiently accurate to say that, in coquilles of zero power, the thickness of the lens at its centre is three times the difference of the radii of the two spherical surfaces. Figure 1, in which the angular and linear measurements are based on these simplified values, shows, with very close approximation to accuracy of scale, the meniscoid configuration of any coquille of zero power, of glass.

Inasmuch as $A_1A_2B_1B_2$ may be taken to represent a principal section of a convexo-concave (or concavo-convex) cylindrical lens, it follows that the geometrical construction and the trigonometrical solutions for coquilles of cylindrical curvature are the same as for spherical coquilles.

It will be observed from the geometrical construction (Fig. 1) that, in the case of parallel rays refracted centrically through a convexo-concave (or concavo-convex) lens of zero power, the spherical aberration at the first surface is exactly neutralized at the second surface. The emergent parallel pencil, as a whole, is, however, either condensed or rarified, proportionately to the thickness of the lens, according as the convex or the concave surface is turned in the direction of the incident rays.

The case of a convexo-concave or concavo-convex lens of zero power is noticed incidentally by Helmholtz (*Handbuch der physiologischen Optik*, 1867—page 61, (3), line 6). Heath (Treatise on Geometrical Optics, Cambridge, 1887) does not mention it explicitly, but it may be read into the discussion by interpolating an obvious transitional case:

$$r_1 - r_2 = (\mu - 1)c$$

between $(3, \alpha)$ and $(3, \beta)$, page 69. In discussing the case of a coquille lens of zero power as an independent problem, an attempt has been made to present it in an elementary form accessible to readers who may either overlook or have difficulty in interpreting the casual references in standard treatises on Optics.

SPECIAL FORMS OF LOCAL REACTION IN THE EYE AFTER SUBCUTANEOUS INJECTIONS OF OLD TUBERCULIN.

J. Rupprecht (*Medizinische Klinik*, Aug. 8, 1909) reports two cases, one of which provides important clinical evidence that tuberculosis is a true ætiological factor in chorioidal inflammations. This case had several fairly fresh, isolated chorioidal patches in both eyes, but after a subcutaneous injection of 10 mg. of old tuberculin developed a fresh, very diffuse chorioidal infiltration extending to the papilla in each eye. In the other case (one of serous cyclitis), after a subcutaneous injection of 5 mg. of old tuberculin, some hyphæma appeared in the anterior chamber, associated with circumscribed ciliary injection and increased deposits on Descemet's membrane, thus making the differential diagnosis between sympathetic and tuberculous cyclitis.

A USEFUL MILD CAUSTIC; A RELIEF, POSSIBLY A CURE FOR SOME FORMS OF CANCER.

By Arthur E. Ewing, M.D.,
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To gainsay or to underrate the utility of the actual cautery as a cleansing agent would be to undervalue the teachings of all the ages. Its absolute action, however, in the destruction of life renders it a source of dread to all living creatures; and so great is the fear of it in man, that, often where its use is clearly indicated, the sufferer prefers to risk his own powers of recuperation and the destructive influence of his own tissues upon the disease rather than to permit the focus of the disease to be destroyed by fire.

What may be said of the actual cautery may also be said of the majority of the chemical caustics, with this to be added, that they are less easily controlled on delicate tissues, such as the cornea, and the pain following their employment is usually much greater, and their action less certain. Their only advantage is in being less dreaded by the laity. Among those for use upon the cornea, silver nitrate, carbolic acid and nitric acid are probably most generally resorted to. Within the last year I have happened upon another, which in my hands has proved to be very efficient and attended with less danger and usually less pain, whether used upon the cornea or upon other tissues.

The original case in which it was employed, a man sixty-six years of age, came because of a growth upon the dermal surface of the lower lid, nasal side, which began as a small scab two years previous to this, and which had increased in size during the last four months and often became inflamed. At this first examination the ulcer was seven millimeters in diameter, had an indurated base, was covered with a scab under which there was a little pus, and involved the cartilage of the lid margin to the extent that the waxy-like tissue of the growth could be clearly traced down on the conjunctival surface of the lid to about two millimeters from the lid margin, and along the lid margin from the punctum outward about six millimeters. In every respect the neoplasm presented the characteristics of a slowly growing malignant epithelioma. With the intention of excising the inner half of the lid in the next day or so the scab was removed, and an alcohol cleansing solution of resorcin and salicylic acid with a trace of carbolic acid and the oils of lemon,

lavender and bergamot, was applied to the ulcer, and over this a four per centum ointment of white precipitate in vaseline.

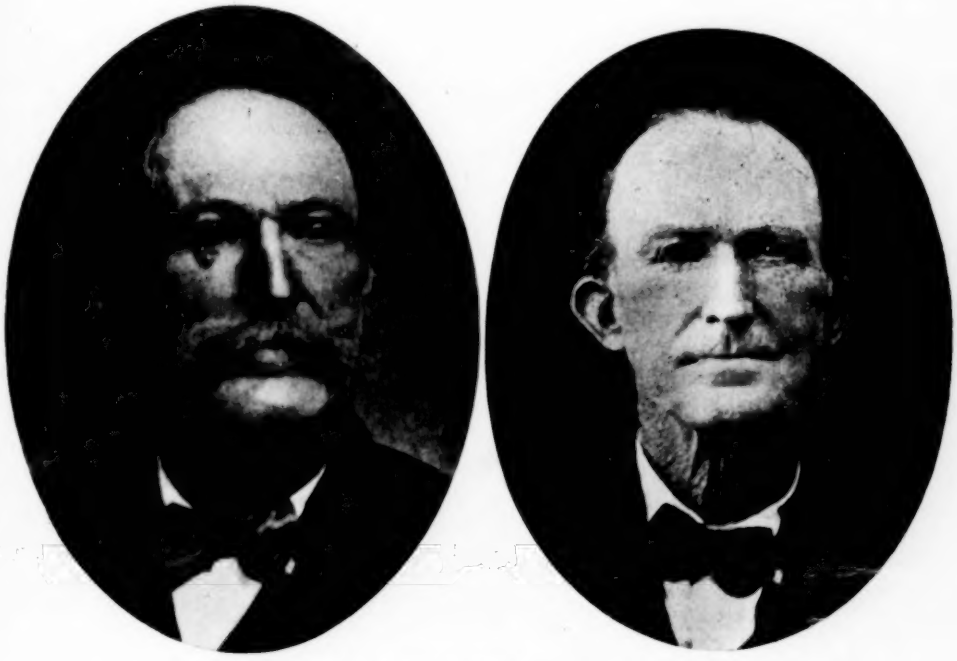
The following day the general condition of the ulcer was improved and the basal induration was notably lessened. The application was repeated. During this repetition it was observed that the cancerous tissue upon the lid margin became somewhat brownish. Close inspection with a lens showed numerous brownish points over this portion of the growth, apparently charred capillaries. The next day this tissue came away as a thin layer of slough. There was no inflammatory reaction and the basal induration was still further lessened. It was then decided to find the most active of the two principal ingredients of the solution, if this were possible, and with it to increase the strength of the solution. This was accomplished by trying separately saturated solutions of resorcin and salicylic acid in the alcohol solution of carbolic acid and the essential oils. The resorcin solution coagulated quickly the exudate upon the surface of the ulcer. The salicylic acid solution acted similarly, and in addition to this dried the tissues and blackened the tips of the capillary vessels. A combination of the two in proportions indicated below seemed to act most efficiently and be the least irritating. This was teased daily or every second day into the surface of the ulcer until every portion of the cancerous tissue seemed to be destroyed along the lid margin and down to the orbicularis muscle, and its place was being taken by healthy granulation tissue, which was much less easily affected by the caustic. The caustic was then stopped and the ulcer permitted to heal, which it did rapidly and kindly under the use of the milder solution applied once daily and followed by the white precipitate ointment. Within a few weeks the induration incident to the healing of any granulating wound began to disappear, and when last seen, three months ago, the tissues about the scar were as soft and pliable as any other portion of the lid, and the scar itself did not differ from any ordinary cicatrix.

A little later, February 25, 1909, a lady, forty-nine years old, came with an unmistakable small malignant eptheliomatous growth on the inner portion of the lower lid of the left eye, which measured six millimeters vertically and had extended twelve millimeters outward along the lid. It first appeared as a small pimple, but had grown rapidly during the last twelve months. This was destroyed in a similar manner in about three weeks. Recently she has written that there is no evidence of any return of the growth.

About the same time, February 24, 1909, another patient appeared, a man sixty-two years of age, with a growth that involved the orbital margin of the malar bone and extended backward beneath the globe in the outer third of the orbit. Two attempts had been made to remove it by means of plasters. In these attempts the lower lid had been so far destroyed that only an infiltrated suggestion of a lid remained, three small nodules each five millimeters in height. The growth had existed ten years. Three years ago the first plaster was applied, and the second one a year later. During the last two years nothing had been used. Now, the growth upon the malar bone was fifteen millimeters in diameter and five millimeters high, with a crater-like center, over which there was a scab. The tissues of the cheek were tense and hard for some distance about the tumor, while the growth itself seemed to be firmly attached to the bone. The patient had applied to the St. Louis Skin and Cancer Hospital, and was told there that his only hope was in the removal of the growth together with the eye and the contents of the orbit. In this opinion I concurred. He refused to submit to any surgical interference, but was very desirous for something which would relieve the redness, burning and watering of the eye. As this could only be accomplished by checking the progress of the growth, applications as above indicated were made daily or every other day until March 27th, when the patient decided that he could no longer remain away from his home, which was in a distant state. Within a week after beginning the applications the tissues upon the cheek began to soften, and at the end of three weeks they were as pliable up to the margin of the ulcer left by the destruction of the growth, as the tissues in the same region on the other cheek. The burning and weeping of the eye had ceased, the conjunctiva was nearly normal, and the patient was very comfortable. I have a letter from him written last week in which he says there has been no return of the tumor, but that he had been operated upon for cancer of the stomach. I suspected this condition while he was here, as he frequently complained of indigestion, but he could not be induced to submit to an examination

This case was peculiarly interesting because of its demonstration of the cauterizing power of the solution. The crater proved to be rather soft cancerous tissue, filled with large bloodvessels, which seemed to spring from the infraorbital vessels, and which, after passing outward over the margin of the orbit, divided into numerous branches that radiated fan-shaped into the body of

the growth. After a few applications these vessels were reached and were noticed to turn black the same as the capillaries, although some of them were more than a millimeter in diameter. As the applications were continued these vessels became like a tangle of small dried twigs. For fear of hæmorrhage that might prove to be troublesome, this tangle was not disturbed, and a little later it began to break in places and gradually the vessels came away in pieces with the remainder of the slough. With their death the growth subsided very rapidly. Yet with this amount of destruction there was no inflammatory reaction; on the contrary, the growth was all the time subsiding, a matter of



importance, as it may signify death so positive and certain in the tissues attacked as to destroy the tendency to migration elsewhere.*

In this same connection may be mentioned another instance of a bleeding wart on the margin of the upper lid, about its center, in a lady seventy-two years of age, which had annoyed the

*During the two weeks that have elapsed between the reading of this paper and its going to press, this patient has sent to me the photograph from which the half-tone Fig. No. 2 has been reproduced. It shows the present condition of the eye and the cheek. The half-tone Fig. No. 1 is from a photograph taken February 23d, 1909, the day preceding the application of this caustic.

patient for several years, and at the destruction of which an attempt had been made about a year previous in another city. It was a very slightly irritated spot on the lid margin between the cilia and the conjunctiva, to which an old blood clot was attached that reached to the end of the lashes, resembling a pigmented pedunculated wart. A single careful application of the solution destroyed the growth and there has been no return now in eight months.

Upon the cornea this solution has proved very satisfactory in a variety of instances. One of these, patient aged 70 years, was a large suppurating ulcer resulting from an injury to the eye by a twig, which seemed to have perforated the cornea in its outer portion. There was complete anterior synechia, the cornea was seemingly necrotic throughout its lower half, and there was apparently a hypopyon which about one-third filled the very shallow anterior chamber. The eye was cocainized and with a pledget of cotton on a sterilized toothpick the solution was carefully touched over the whole suppurating surface daily or every second day, as seemed to be indicated. This procedure was attended with less pain, according to the patient's statement, than the pain from the ulcer. In a few days the pain ceased entirely, the purulent infiltration was replaced by a healthy infiltration and all of the cornea was saved that was not entirely necrotic when the patient first came.

Another very marked instance was a vascular keratitis, or pannus in an eye, patient aged thirty-one years, which had been more or less sore for three and a half years previous to coming under my observation, and which was treated by me with indifferent success from December, 1908, to June, 1909, when there was a severe exacerbation. After cocainization this solution was quickly pencilled with a cotton pledget over the whole conjunctival surface of the upper lid, and permitted to extend downward over the vascular portion of the cornea, and was washed over immediately with a two per centum borax solution in water. The same afternoon and evening there was considerable pain, which was largely controlled by compresses from cold water. The following two days the eye was quite sore, there was moderate exfoliation of the epithelium, and the formation of a delicate inflammatory, croupous-like membrane over the conjunctival surface. With the daily routine treatment with solutions of zinc sulphate 1/480, borax 1/48 and atropine 1/120, the under surface of the lid became smooth and the vascularity of the

cornea nearly disappeared in two weeks, and at the end of six weeks, more had been accomplished than in all the time previous to this.

Another case was that of a fascicular keratitis, patient aged twenty-eight years, which, according to the history, had existed for two months, and which at the time of the first examination extended from the upper inner margin of the cornea nearly to its center. An application was made along the furrow. From this there was almost no pain. In forty-eight hours there was marked improvement in the condition of the eye and healing was rapid. Four weeks later a very small ulcer re-appeared at the end of the scar near the center of the cornea. To this an application was made and complete recovery has followed, there having been no relapse now for five months.

Another example, patient aged 55 years, was in dendritic keratitis, or malerial ulcer, at the lower inner margin of the cornea and extending four millimeters toward the center, which was accompanied by considerable pain. This was greatly relieved by daily applications of quinia bi-sulphate, three per centum solution, to the surface of the ulcer, but was never entirely controlled. With one application of this alcohol solution the pain ceased and there was rapid recovery.

In all of these cases the usual routine cleansing measures are taken that would follow the use of the actual cautery. The weaker or cleansing solution used in the first case has long been employed by me for seborrhea, acne, toothache, insect bites, shaving, fresh wounds and ulcers. Its proportions are:

Resorcin	gr. xl	: grmm.	2.60
Salicylic acid	gr. xx	:	1.20
Carbolic acid	gtt. j	:	.06
Oil lavender	gtt. j	:	.06
Oil lemon	gtt. iv	:	.26
Oil bergamot	gtt. iv	:	.26
Alcohol, 95%	℥ iv	:	124.40

For cauterizing purposes this solution should be saturated with salicylic acid, which means the addition of one hundred and twenty grains, or 8.00 grammes of the salicylic acid to each ounce.

The drugs are all well known, and all of them are used in various ways in connection with general medicine, with the exception, perhaps, of the oil of bergamot, which seems to have a place only in perfumery, and yet when it is dropped upon the

tongue its anæsthetic action is quite as marked as that of the other essential oils. The anæsthesia produced by the solution is doubtless due to these oils in combination with the alcohol, the resorcin and the carbolic acid. Where it may be employed in place of the actual cautery, or the more powerful caustics, its advantage is in this anæsthetic power, together with its safety, and its slight tendency to excite acute inflammatory reaction. Upon the cornea and conjunctiva it should be used carefully so as to not injure healthy tissue. Upon epithelial growths it will have little effect where there is much thickening of the epithelial mass, unless it is teased into the growth until the capillaries become brown or black, and this should be repeated daily or every second day until all the epithelial tissue is destroyed, and the floor and margins of the ulcer are covered with normal, healthy granulation tissue.

When either the weaker or the stronger solution is applied to an abraded or a sensitive surface there is a sharp momentary sting, followed by a little pain, unless cocaine or some local anæsthetic has been previously used. This pain quickly subsides. Either of the solutions may then be immediately and frequently re-applied with little or no suffering to the patient. The stronger or caustic solution first causes abraded, ulcerated or mucous surfaces to turn white. If this whitened surface is teased, preferably with the weaker solution applied on a pledget of cotton and alternated occasionally with the stronger solution, the teased region will presently change from white to brown or black, when red blood is present, usually very readily in adventitious tissue, less readily in normal tissue. When used upon the cornea the immediate and subsequent action of the stronger solution closely resembles that of the actual cautery.

MEDICAL SOCIETIES.

XVI. INTERNATIONAL CONGRESS OF MEDICINE.*

Held at Budapest August 28th to September 4th, 1909.

SECTION ON OPHTHALMOLOGY.

Report by Professor Dr. W. Stock, Dr. von Szily (Freiburg), and Dr. Cohen (Breslau).

TRANSLATED BY ADOLF ALT, M.D.

(Continued from October number.)

W. Uhthoff (Breslau).—*Eye symptoms in affections of the hypophyses and in akromegaly.*

The author reviews 328 cases, among them 121 of tumors of the hypophysis without akromegaly, 207 with symptoms of akromegaly. In both forms the eye-symptoms are the ones which lead to the localization of the disease (mostly tumors) and a diagnosis.

One quarter of the cases of tumors of the hypophysis and infundibulum without akromegaly, anatomically proven, were so-called homœoblastic tumors; three-quarters were destructive heteroblastic ones. Since in the first group we must think of an increased function of the hypophysis, we must assume a decrease in function in the latter group.

Among the 148 affections of the hypophysis without akromegaly, amblyopia or amaurosis were found in 34. In almost half of the cases blindness resulted. Temporal hemianopsia (37 cases) is undoubtedly the most characteristic symptom of affections of the hypophysis and infundibulum. Peripheral narrowing of the field of vision is much rarer. Certain improvements are sometimes observed, thus, for instance, a total amaurosis may be changed into a temporal hemianopsia. If at repeated examinations the visual disturbance is found unaltered, we may assume a standstill in the progress of the tumor and a benign character.

*Klin. Mtsbl. fuer Augenhlk., September, 1909.

Homonymous hemianopsia is very rare. A typical choked disc was found in 13 per cent. of the cases, that is, much rarer than in brain tumors in other locations, especially in the posterior parts. This is an important factor for the diagnosis. Neuritis optica or postneuritic optical atrophy were seen in 13 per cent. of the cases; simple optic atrophy existed in 22 per cent. In one-fifth of the latter cases there was a total amaurosis. Compression of the chiasma and optici without details concerning the visual disturbances were noted 12 times. Central scotomata and peripheral narrowing of the fields were found 3 times, optical hallucinations in one case. In 25 per cent. of the cases of tumor of the hypophysis without akromegaly paralyses of the ocular muscles were observed; in by far the largest majority of the cases these were paralyses of the oculomotor nerve, mostly only partial, often only a ptosis. True ophthalmoplegia is quite rare, as also paralysis of the abducens. The trochlearis was never seen to be paralyzed. The condition of the pupils usually gives no diagnostic clew. Nystagmus, too, is very rare. Exophthalmus was observed occasionally.

Of the 207 cases with akromegaly 51 were examined post-mortem. Of these 60 per cent. had malignant tumors, 40 per cent homœoblastic forms. Visual disturbances were seen in 180 of these cases. This was most frequently a temporal hemianopsia (89 cases). When this is found in akromegaly, it is the most important support for the diagnosis of a tumor of the hypophysis. In one-third of these cases, moreover, simple atrophy of the optic nerves was noted. Homonymous hemianopsia is very much rarer. Choked disc and optic neuritis are much scarcer than in cases of hypophysis tumors without akromegaly, which may be due to the greater frequency of malignant tumors in these cases. On the other hand, simple optic atrophy is frequent in akromegaly (38 per cent.). Enlargement of the size of the whole eyeball was never observed.

With akromegaly, too, a paralysis of the oculomotor is the most frequent disturbance of the ocular muscles; however, these are much rarer. Nystagmus was found in only 6 per cent., exophthalmus in about 8 per cent. of the cases. With akromegaly anomalies are observed in the lids which consist of enlargements (œdema, hypertrophy, etc.), and must be likened to the increase in volume of other parts of the body. The pupils show no symptoms. Sometimes lacrimation is increased, sometimes a hyperplasia of the lacrimal gland is found.

According to the summing up of the author eye-symptoms accompany affections of the hypophysis with or without akromegaly with enormous frequency, especially concerned are the basal and peripheral optic conducting tracts. The course of the disease with akromegaly is considerably more protracted, than when there is no akromegaly present. A part of vision may be retained to the end even in fatal cases. Operative interference is very difficult and full of responsibility, since it may have a bad influence on vision. It seems possible that calcification may stop the growth of the tumor. The homœoblastic tumors of the hypophysis grow very slowly, and it may take years before the visual disturbance appears. The peculiarity of the eye-symptoms is undoubtedly due to pressure exerted by the tumor upon the basal optical tracts, and nerves of the ocular muscles. The direction of the growth of the tumor is usually forward, pushing the chiasma ahead.

As other disturbances of nutrition and growth in cases of hypophysis tumors with ocular disturbances, we note: (1) Adipositas universalis. This is truly frequent in such cases, especially in juveniles. (2) Disturbances in the genital sphere. How these are produced is still unknown. (3) The author found accompanying the temporal hemianopsia an atrophy of the thyrioid gland in two cases. (4) Nothing is known of a possible influence on the disease by a persistent thymus gland.

Axenfeld (Freiburg) points out that for the ophthalmologist the importance of affections of the hypophysis is very great. We know to-day that "optic atrophy joined with an infantile uterus," or "with amennorrhœa," is a hypophysis symptom, and several other dark symptoms may thus be explained. The "optic atrophy with myxœdema" may, also, belong to this class. In one of his cases, which will be described in the dissertation of Berliner, the Roentgen photography of the base of the skull showed a distinct enlargement of the sella turcica. He, too, has seen lasting, standstill and pronounced improvements in cases of hypophysis tumors. This renders judging the therapeutic influences (as by means of hypophysis tablets) very difficult. Flooding the body with iodide (up to 20 grm. daily for 2 weeks) produced every time a marked improvement in one case.

Coppez (Brussels) has a case of hypophysis tumor in a young man under observation for 6 years. The tumor has broken through into the Highmore's antrum, and cerebro-spinal fluid

is escaping. It should interest him to know whether Uhthoff looks upon the disease as an increased or decreased function of the thyreoid gland.

Uhthoff says that myxœdema and kachexia strumipriva alone do not produce optic atrophy and visual disturbances. As therapeutic measures he has given hypophysis tablets, iodide and electric light baths. It is difficult to appraise their value.

J. E. Weeks (New York).—*The serum and vaccine therapy in ophthalmology.*

The author gives an exhaustive report on the present standpoint taken in North America concerning his subject based on statistics, partly obtained from others.

Of the tuberculin praeparations are in use: (1) Koch's original tuberculin (T. O.); (2) Koch's new tuberculin (T. R.); (3) Emulsion of bacilli (B. E.); (4) Bouillon filtrate (B. F.) [Denys].

For diagnosis T. O. is undoubtedly the best. The dosage usually begins with 0.5 mg., and, if necessary, is increased to 3 mg. To make the diagnosis positive a general as well as a local reaction must be noted. In intraocular tubercular affections an increased vascularity and volume of the tubercular nodules is said to characterize the local reaction.

The ophthalmoreaction (Calmette, Wolff-Eisner), on account of the frequent bad results for the eye, can be given only a small field of usefulness for the diagnosis, as, for instance, when other methods have failed. All diseases of the eye forbid this means of diagnosis.

The cutaneous reaction of von Pirquet and the subcutaneous reaction do not permit of definite conclusions.

Tuberculin diagnosis in phlyctaenular affections of the conjunctiva and cornea has given proofs of the tubercular nature of the affections in 48 out of 55 cases. In choroiditis, too, this reaction has proven useful, while in the remaining eye diseases it is of little value.

For the therapeutic use of tuberculin the author praises especially B. F.; but T. R. and B. E. are, also, used extensively and successfully.

As to the method, the one advocated by von Hippel is generally regarded as fundamental. The initial dose is 1/500 mg., which is doubled every third day until the highest dose 1 mg. is reached, the temperature being carefully observed. The dura-

tion of the treatment varied in the cases referred to by him between 10 weeks and 18 months. Almost every one of the authors consulted report satisfactory results. The measuring of the opsonic index has produced no practical value.

The advantage of the diphtheria antitoxin in all cases of diphtheritic eye affections is undoubted. According to the age of the patient and the severity of the affection, 2,500 to 6,000 immunisation units are injected. Since it is not always possible to make the desired quick diagnosis of diphtheria by means of bacterial examination or experiments on animals, we must in doubtful cases begin with the antitoxin treatment before the diagnosis has thus been verified.

In the sense of opsonic action, Wright hopes that in inflammatory processes his vaccine will be valuable.

Rogers and Torey have produced a gonococcus serum which has proven its value in cases of chronic urethral gonorrhœa and of metastatic gonococcic affections. In gonococcic eye affections the usefulness of this serum, according to reports, is very doubtful. In acute cases it was absolutely useless; subacute and chronic affections (iritis) seem influenced by it, yet the number of reports is too small as yet to admit of definite conclusions.

The value of antistreptococcus serum and streptococcus vaccine was throughout a doubtful and negative one.

Deutschmann's serum has no adherents among the American ophthalmologists. The cases of eye injuries in which tetanus antitoxin may be applied are very rare. The value of this antitoxin as a specificum is generally admitted. Strauss's carcinoma serum has thus far not been used in carcinoma of the eye. The typhus serum of Chantemesse is hardly of any value to the ophthalmologist.

In the case of a man 24 years old, Coley saw an inoperable orbital sarcoma disappear in three weeks' (!) treatment with his toxin. Other authors had no success with this serum. The value of Flexner's meningococcus serum, as far as the eye goes, depends on its favorable influence on the cerebrospinal meningitis. Against cancerous newformations, one of the cytogenous sera, the epitheliolyzin, has been recommended. For its production sheep seem to act most favorably. Wassermann's reaction has been found to be a specific for the diagnosis of syphilis. It was positive in 90 to 95 per cent. of the cases with syphilitic symptoms. Even more trustworthy, perhaps, is the modified method of Noguchi.

Roemer (Greifswald).—*Serum therapy in ophthalmology.*

Within the last two years Roemer has treated 40 cases of ulcus serpens. These cases usually came late for treatment, on the 3d or 4th day, or even later. Therefore the success of the serum was often poor. He recommends that the physician should at once inject the serum and then send the patient to the eye clinic. The main point is the prophylaxis. In order to find out how much of the antitoxin reaches the cornea, Roemer has made experiments by injecting diphtheria toxin into the cornea and then treating the animals with antitoxin. The effect was definite.

Since it is not equally certain that the pneumococcus serum enters the cornea, and since its quantitative determination is more difficult, Roemer recommends, aside from the subcutaneous injection, to powder dry serum on the ulcer and to make a small injection of serum into the cornea near the progressing margin of the ulcer.

A Leber (Berlin).—*Serum diagnosis of eye diseases.*

In ophthalmology the practical serum diagnosis is limited to the examination of secretions and exudations, especially the blood serum, since the gathering of sufficient aqueous humor for diagnostic purposes would necessitate too serious an interference. The modern serum diagnosis concerns, in the main, syphilitic and tubercular affections.

Lues is diagnosed by means of Wassermann's reaction, which is based on Bordet and Gengou's complement fixation. When certain points are strictly observed, this latter method may, also, be used in tuberculosis for the determination of specific bodies. For the diagnosis of tuberculosis, furthermore, we may use the opsonic index, von Pirquet's cutaneous reaction, and in exceptional cases the conjunctival reaction.

The author vouchsafes a limited field only to the diagnostic injection of tuberculin, because it is dangerous for the eye.

The praecipitation methods have thus far been valueless in practice, in syphilis as well as in tuberculosis.

The ætiology is determined solely by the positive result of the serum reaction. We cannot do without a searching clinical judgment of the reaction, especially since lues and tuberculosis may be present together, and the success of the therapeutic measures is really the last criterion. Wassermann's reaction is specific for lues. In a high percentage of cases of syphilitic eye diseases, whether they are acquired or inherited, it is positive.

The lues antibodies may disappear under antisyphilitic treatment.

The complement fixation can demonstrate a specific antibody in a number of tubercular eye diseases, viz.: the antituberculin. This has thus far only been found in tubercular cases. Therefore, the demonstration of antituberculin in the blood serum may in certain ophthalmological cases be used ætiologically to the exclusion of syphilis. It seems that circumscribed tubercular foci are probably especially favorable to the formation of antituberculin.

In order to apply the serum diagnosis successfully and safely in the service of ophthalmology, the utmost possible scrupulous care must be observed in its technique.

Miyashita.—*Conditions of immunity in the anterior chamber.*

Experimental researches by Wessely and Roemer have induced the latter author to formulate the well-known law of cytotoxin retention, which states that the antibodies of a cytotoxic nature in the blood are retained by the ciliary body and that not a trace of them appears in the aqueous humor.

The author's own experiments have proven this law to be in part erroneous, for a certain, if small, amount of hæmolytic amboceptors can always be found in the aqueous humor of immunized animals. But he was never able to demonstrate any complement.

Possek (Graz).—*The ætiology of opacities of the lens.*

Several of the praemises which might have been expected when accepting Roemer's cataract theory, have thus far not been found. The serum of old cataractous individuals does not differ from that of juvenile ones as regards the affinity to lens albumen, nor are disease conditions of the general system able to influence the secretory apparatus in the eye as to its ability of retention.

From experiments on artificial cataracts and the influence on them of lens substance, the following conclusions as to the origin of cataracts have been drawn:

The peculiar biologic behavior of lens albumen when compared with the rest of the albuminous bodies of the body, justifies the assumption of its nutrition by specially grouped bodies. The opacities in all forms of cataract may be looked upon as results of disturbed nutrition. This disturbance may be due to an influence exerted upon the specific nutritive bodies in the generally

diseased body, which renders them useless as a nutritive material. Whether this is a lytic process or a change in their molecular grouping, is at present an open question. The opinions of the Ehrlich school can in this matter give no certain explanation, since the lipoids seem to play a special role.

It is assumed that general diseases in which cataract can be observed are in this way able to bring about disturbances in the lens nutrition, just as senile metabolic changes according to Roemer's known hypothesis.

The intensity of cataract formation and the prognosis of an organo-therapeutic effect would depend on the extent to which the capsular epithelium was primarily affected by the disturbance of nutrition. The possibility of a prophylactic treatment would prove a great boon.

Jessop (London) has used T. R. in cases of iritis, iridocyclitis, scleritis, keratitis and choroiditis, keeping the patient absolutely quiet and observing general condition and temperature carefully. He is against Calmette's ophthalmoreaction. The staphylococcus vaccine gives excellent results in cases of blepharitis and furunculosis and in chronic conjunctivitis due to the staphylococcus aureus.

Axenfeld (Freiburg) again lays stress on the necessity of determining quantitatively the participation of the refracting media of the eye, especially of the cornea, in the difficult kinds of immunity, and discusses the difficulties in this direction when dealing with pneumococci. From experiments he made, together with Mijashita, it seems that the rabbit's cornea shares in the pneumococcus immunity but to a very small degree. Another great obstacle to the successful therapy with pneumococcus serum lies in the difference of the cultures which even in the newest serum from Hoechst is not eliminated.

Neither can we draw conclusions concerning the eye immunity from one bacterium to the other. Thus the cornea takes no part at all in the general vaccine immunity (smallpox). A participation of the practicing physician in serum therapy can as yet not be discussed.

The collective study at present being made by Darier of cases which had been treated with "paraspecific" serum therapy may lead to great errors. It would be better at first to experiment further with it and to prove Happe's results.

Wicherkiewicz (Krakau) has seen no results from serum treatment. Pyoktanin and electrargol gave the best results. We must look for a dakrycystitis and if necessary remove the sac.

Elschnig (Prag).—Calmette's reaction must be abandoned. Wassermann's reaction is as yet not quite proven. He does not think it wise to educate the practicing physician to use serum and then send the serpiginous ulcers as quickly as possible to the eye clinic. They should not use the serum. Cautery is still the effective therapy.

Stock (Freiburg) has made a great many determinations of the opsonic index in patients with uveal tuberculosis, and has found that the index is of no importance concerning the prognosis and therapy of the eye affection. But diagnostically we can gain something through irritating suspicious eyes (dionin), when through this the index is made to change considerably. This new diagnostic method is, however, very complicated and consumes much time.

Schirmer (Strassburg).—Lately Roemer would have his serum used only for diagnosis. This is very strange, since the serum has been continuously improved and the former results in serpiginous ulcer were satisfactory with the unimproved serum. Schirmer reports 10 cases of ulcus serpens. In 8 of these pure cultures of pneumococcus were gained from the cornea. Although the serum acted on animals he did not get the impression that the process in the eye was influenced by it. It was used in very high doses, up to 90 ccm. in 3 days.

Morax (Paris) declares it impossible for the practicing physician to use Roemer's serum, because irritants other than the pneumococcus are relatively frequent.

Uhthoff (Breslau) asks Leber whether it is possible for Wassermann's reaction to be negative with blood and positive with cerebrospinal fluid. Neurologists demand this double proof.

Gradle (Chicago) reports on his experiences in treating phlyctaenular affections with staphylococcus vaccine. He uses this therapy in cases in which staphylococci are found in the conjunctival sac. The results are satisfactory. Since phlyctaenules

are not primarily due to staphylococci (which act secondarily only) relapses are not prevented.

Kuhnt (Bonn), 5 years ago, made injections of serum into the cornea in two cases. The result was bad. He warns against its use.

Bloch (Ratibor).—Wassermann's reaction is positive with the blood of dead syphilitics. Sometimes, also, with tubercular corpses in which no syphilis can be found. He does, therefore, not consider the Wassermann reaction as specific, and all conclusions from it are previous.

Roemer intends to critically revise Mijashita's results.

THE OPHTHALMOLOGICAL SOCIETY OF THE UNITED KINGDOM.

Thursday, October 21st, 1909.
The President, Dr. G. A. Berry, in the chair.

A New Retractor for use in Excision of the Lacrimal Sac.—Mr. N. Bishop Harman.

This instrument combines the actions of Müller's and Axenfeld's retractors, but without the inconvenience of the upper limb of the latter. To the spring end of a Müller's retractor a long claw is attached, which can be drawn back by means of a milled nut fixed behind between the arms.

To put it into use, the long claw must be pushed home to just behind the side prongs of the lateral blades; then the instrument must be inserted between the lips of the wound *closed*. Release the check screw and the blades spring apart; then by means of the milled nut the long claw must be drawn down until it impinges on the lower angle of the wound. The front claws of the blade are pivotted and so shaped that they oppose the backward drag of the long claw, and in this manner the incision is stretched tight.

Two Sisters with Symmetrical Discoid Cataract.—Mr. N. Bishop Harman.

Two sisters in a family of 4 were found to have this variety of cataract; the discs were perfectly regular in outline and semi-transparent. Of the two other children in the same family, one, a boy, died at 4 years of age, and a girl, aged 2, had perfectly healthy lenses. One of the patients was 9 years old and the vision in both eyes, with correction, was 6/6; the other child, 7 years, had vision of 6/9 with correction.

An Albino Negro.—Mr. N. Bishop Harman.

The man, who appeared to be about 20 years of age, was born of parents who were quite black, as also were his brothers and sisters. In his form and features he was a typical negro, but his hair was a pale straw color.

The man kept the palpebral fissures half closed and manifested intolerance of light; there was also a lateral nystagmus. The irides had a yellowish tint, but the fundus was not visible through the iris tissue. The eyes showed high myopia and some astigmatism. The color of the fundus was a pale buff, with little distinction between the color of the disc and that of the choroid.

Two Cases Illustrating Irido-sclerectomies by the Open Method in Glaucoma.—Mr. G. Brooksbank James.

Mr. Brooksbank James's method is to turn down a conjunctival flap, then incise the sclerotic from without inwards, with a Beer's knife, and when the iris presents perform an iridectomy in the usual way. Small pieces are then punched out of the sclerotic from the upper lip, and the conjunctival flap replaced. He gave notes of 2 cases treated in this way, in which the vision 3 to 5 months after operation remained as it was before, with practically the same correction, the tension was normal, and the scar obviously filtering.

A Case of Marginal Keratectasia—Bilateral.—Mr. J. Herbert Fisher.

A. G., female, aged 41, unmarried, came recently with the history that the right eye had been inflamed 15 or 16 years ago, when she was under Mr. Doyne's care at Oxford. The eyes had never again been inflamed or painful, but she thought her sight was getting worse. The vision in the right eye was 6/60, and that of the left 6/6, with correction.

In each eye the corneal curvature is distorted by great stretching of an upper marginal segment of crescentic shape, the stretched segment being limited towards the corneal tissue by a well-marked, greyish-white line, not unlike an arcus senilis, but Mr. Fisher was of the opinion that this line really represents the inferior limit of the natural scleral arc, and therefore that the stretched crescents represent the marginal vascularized part of the normal cornea. The stretched segment forms almost an angle with the normal corneal tissue, and at the highest point, its widest part, is roughly twice as wide in the right as in the left eye, the actual measurements being 4 mm. and 2½ mm. respectively. In other respects the eyes are healthy. Similar cases are described by Fuchs (*Arch. f. Ophth.*, lii, 1901, pp. 327 and 328) and another case illustrated by Terrien (*Arch. d'Ophth.*, vol. xx, 1900, p. 12) is almost identical with the present one.

Retraction of the Globe on Blinking.—Mr. H. Grimsdale.

E. C., aged 12, came for treatment on October 18th, 1909, complaining of occasional double vision, and that the movements of the eyes were somewhat strange. The vision in each eye was 6/9, with + 1 sph. Movements in all directions were free except upwards, and in this direction the eyes rotated 15° and then stopped. On blinking there appeared to be retraction of the eyes, and if the lids were held open actual retraction was very evident, as if all the muscles were thrown into spasm; some of the facial muscles were also spasmodic. There was marked optic neuritis of cerebral type, the swelling being about 5 D. Urine normal.

PAPERS.

A Note on the Making of Pedigree Charts.—Mr. Priestly Smith.

Mr. Priestly Smith exhibited a pedigree chart in which printed symbols were employed in place of hand-drawing. Simplicity of form and precision of significance were aimed at. A chart made in this way was well adapted for photographic reproduction in reduced size for publication. He employed ready-made characters printed on slips of paper of sufficient size to be legible at 30 feet or more. The symbols were those usually adopted, with the following modifications: the appendix marking the sex is an arrow in each case, pointing vertically upwards for the male, vertically downwards for the female. If a case had been personally examined a horizontal line is drawn through the base of

the arrow, while the omission of this line means that reliable information has been obtained, though an examination has not been possible. A horse-shoe shaped sign, instead of a circle, indicates that there is no evidence, and this symbol is easily converted into a complete circle when the necessary information has been elicited.

A Pedigree of Congenital Discoid Cataract.—Mr. Priestly Smith.

Mr. Priestly Smith exhibited a chart containing an extensive pedigree of congenital discoid cataract, consisting of 6 generations of a family named Forman, settled in and about the village of Stapleton, near Hinckley, in Leicestershire. The family belongs almost exclusively to the laboring class, some are farm laborers, and some coal miners. On the whole they are a healthy family; many have dark hair like the Coppock family, but there are to be found some with light hair both among the affected and unaffected.

The cataract was in all cases found to be discoid and post-nuclear, the size varying and thus producing different degrees of visual impairment.

John Forman, the progenitor, was a carrier, who was known to be troubled with a peculiar weakness of his sight all his life, so that he had to shade his eyes to see well; of his two brothers the elder had good sight and left many descendants among whom no defect of the kind had been known; the younger brother died without issue. John Forman had 14 children and several of these had large families. The number of his descendants was 113, and of this number information was obtainable as to 102, and out of these 26 were affected with discoid cataract; of the 26 affected 24 have been examined and of 76 unaffected 49 have been examined. Excluding unaffected childships, and also from affected childships persons about whom no information is forthcoming, we have 51 cases remaining, of whom 26 are affected; this equals 50.9 per cent.: 15 male and 11 female. With one exception every affected person who has had offspring has transmitted the disorder, the exception being in the case of a man who has at present only one child.

The form of cataract which affects this family has therefore the character of a Dominant according to the Mendelian theory.

PRESIDENTIAL ADDRESS.

Dr. G. A. Berry, in his presidential address, took as his theme the subject of treatment as it has been in the past and as it ap-

pears in the present day. At one time the art of medicine and surgery was ahead of science; now the science of medicine has not only overtaken but outstripped the art.

In ophthalmology treatment is more varied than it is for most other parts of the body. It embraces surgical treatment, optical treatment, local application of drugs and other methods. Dr. Berry entered into the history of cataract extraction, of which the first record that we possess dates as far back as B.C. 25. He traced the history of the operation up to 1866, since which time there had been no radical change in its technique. The first operation for artificial pupil was performed in 1728; iridotomy also was an operation of fairly early date. Dr. Berry after referring to the many modifications of iridectomy showed that nearly all operations had their prototypes in the practice of the most ancient surgeons.

Spectacles first came into use in the 13th century, although 300 years before this the laws of dioptrics were known, and towards the end of the 15th century their use became general.

Dr. Berry next described the various methods of non-operative treatment, discussing the older methods of bleeding, setons, etc., and pointed out that chamomile and hyoscine were known from very early times. Massage and drug treatment was also in vogue for the treatment of trachoma, and about the middle of the 18th century Goulard's lotion was extensively employed in ophthalmic work. A little later 1 in 4,000 perchloride of mercury was used, and in the same century mydriatics were discovered. v. Graefe introduced silver nitrate as a form of treatment, and about the same time myotics came into use. He referred to the varieties of new treatment in our own way such as Quinine, Electricity, Ionization, Roentgen rays, and Subconjunctival Injections.

MALCOLM L. HEPBURN.

REVIEWS.

DISEASES OF THE EAR. A Text-book for Practitioners and Students of Medicine. By Edward Bradford Dench, Ph.B., M.D. With nineteen plates and one hundred and fifty-eight illustrations in the text. Fourth edition, revised and enlarged. New York and London. D. Appleton & Company. 1909.

Five years ago we had the pleasure of reviewing the third edition of this work; since that time, Otology has made remarkable progress, especially in the diagnosis and treatment of the suppurations of the labyrinth. The author has given this special consideration. He has also devoted more space to the chapter on cerebral and cerebellar abscess. Every phase of these subjects have been carefully gone into. Dench's work has long been a standard and needs no further recommendation.

W. E. SAUER.

ATLAS OF EXTERNAL DISEASES OF THE EYE FOR STUDENTS AND PHYSICIANS. By Dr. Richard Greef, Berlin, Germany. Only authorized English translation, by T. W. Shedd, M.D., New York. With 84 illustrations in color from wax models, printed on 54 plates with explanatory text. Rebman Co., New York. Price $10.00.

This beautiful atlas, the result of a working combination of the knowledge of a noted ophthalmologist and the artistic eye of an adept sculptor, will prove of great value to teachers, students and physicians. The pictures are life-like and of life-size, and therefore convey to the mind the actual conditions as found in the various external eye diseases. The accompanying text is of equal quality in its vividness and accuracy of description. The English speaking ophthalmic public owes thanks to the translator for having brought this work within their reach.

ALT.

MINOR OPHTHALMIC AND AURAL TECHNIQUE. A short treatise dealing with minor procedures about the eye and ear. Adapted to the use of those requiring a comprehensive knowledge of the subject. By A. N. Murray, M.D. With 98 illustrations in the text. Cleveland Press, Chicago, 1909. Price $3.00.

As the minor manipulations are usually not very extensively dealt with in the usual text-books, a work like the one before us

may have a legitimate existence. Why it, however, should be burdened with the anatomy, physiology and so much of pathology of the eye and ear, we do not quite understand. Aside from this, the book gives a good description of the minor manipulations about the eye and ear, and may prove of value to students. The illustrations are mostly good and to the point.

NEWS.

It gives us great pleasure to heartily congratulate our friend and collaborator, Dr. Lucien Howe, of Buffalo, at the reception of a medal awarded to him by the 11th International Congress of Ophthalmology, held at Naples last April. Dr. Howe's paper on "The Measurement of the Lifting Power of the Adductors and of the Abductors" won this honor for him.

ABSTRACTS FROM MEDICAL LITERATURE.

By J. F. Shoemaker, M.D.,

St. Louis, Mo.

HETEROPHORIA AS A CAUSE OF INTRACTABLE HEADACHE.

E. T. Smith (*Australasian Med. Gazette,* July, 1909) records a case of persistent headache in a patient having two degrees of right hyperphoria. The day after he did a central tenotomy of the right superior rectus muscle the patient awoke free from headache the first time for a year. As the pain returned next day and continued, and as there still remained one degree of hyperphoria a month later, a small central tenotomy of the left inferior rectus was done. This completely relieved the headache after the next day but caused constant diplopia, which she had not had previously. While closing one eye had given no relief previous to the operations, she now was perfectly comfortable by keeping the left eye closed and resumed her duties, being bright and cheerful. Later the vertical squint was relieved by a careful advancement of the left inferior rectus which, fortunately, produced complete orthophoria and comfort.

NODULAR OPACITY OF THE CORNEA, WITH SPECIAL REFERENCE TO ITS ÆTIOLOGY.

John Green, Jr., (*Jour. A. M. A.*, Sept. 18, 1909) states that this condition was first recognized as a distinct malady by Groenouw, who, in 1890 and again in 1898, studied it both clinically and pathologically. Fuchs added materially to our knowledge of the disease by his study of eight cases, mostly young men. His description of the character of the lesions found in this disease, in the main, quadrate with that of Groenouw. The characteristic lesions seem to be irregular gray opacities in the superficial layers of the cornea, elevating the corneal epithelium often, with a faint cloudiness of the cornea between these opacities, but with little or no inflammatory reaction. There have been but twenty-two authentic cases reported in the literature to the present time. Some of the symptoms are: Moderate photophobia, epiphora, occasionally a foreign body sensation, but no true pain, and with these impaired vision. Very seldom is there any inflammation present. The differential diagnosis and the histology of the affection are discussed. Concerning the latter Fuchs "concludes that the disease is due to a general, as yet unknown nutritional disturbance, of which the sole expression so far observed is the eye disease." Wehrli found the disease in two brothers, one of whom had previously had an attack of tuberculous peritonitis. Other findings by this observer caused him to consider that the eye trouble was related in some way to tuberculosis. Green reports a case occurring in a young man twenty-seven years of age, whose mother and aunt had died of tuberculosis of the lungs, and who himself had numerous scars, the result of cutaneous tuberculosis. Three years previous to coming to Green he began having trouble with his eyes, having a sandy or gritty sensation with some photophobia and lacrimation, but no inflammatory signs. Examination showed the characteristic opacities of the cornea in both eyes with the faintly opaque corneal tissue surrounding them. A minute description of the appearance of the eyes is given. The clear history of tuberculosis in his family and in himself pointed the way for treatment and, accordingly, after two diagnostic injections of old tuberculin, which produced both a local and general reaction, therapeutic doses of old tuberculin were given at intervals of three or four days with decided improvement in vision. In conclusion the author says: "We have, then, in a patient with a very clear family history of tuberculosis, who himself had passed through a severe cutaneous

tuberculous affection, a typical nodular opacity of both corneæ. The absence of any ætiological factor aside from tuberculosis which might conceivably have given rise to such a process, the general and local reaction to the diagnostic tuberculin test, the lessening of the density of the nodules, the clearing of the internodular opacities and notable improvement in vision under tuberculin therapy, lead me to the belief that this case is an attenuated tuberculosis of the cornea. Writers subsequent to Wehrli have been disposed to ignore his findings and conclusions, seeming tacitly to assume that because they did not coincide in any particular with those of other observers they must be faulty. In the light of my own case such a point of view seems to be not justified. In the present state of our knowledge with regard to this peculiar affection, we must adopt the view that cases of nodular opacity of the cornea, clinically indistinguishable, may differ with respect to their ætiology and histology. It seems proper to regard the cases of Groenouw and Fuchs as instances of a general nutritional disturbance of which the sole expression is the corneal lesion. On the other hand, the histologic findings of Wehrli and the diagnostic and therapeutic efficiency of tuberculin in the case here reported seem to indicate that some of these cases may be, as Wehrli has pointed out, examples of attenuated tuberculosis of the cornea."

TREATMENT OF THE OPTIC NEURITIS IN OXYCEPHALUS.

Anton (*Münchener Medizinische Wochenschrift,* Aug. 24, 1909) reports the case of a man with a high degree of oxycephalus who had optic neuritis and was gradually losing his vision. After other methods had been tried and failed, the skull was trephined in the region corresponding to the greater frontanelle and a piece of bone about the size of a quarter removed. Complete relief of headache and dizziness which he had previously suffered followed and the vision improved very materially. The operation evidently relieved the great venous hyperæmia, to which the optic neuritis was ascribed.